

WHAT IS CLAIMED IS:

1. A device of driving a liquid crystal display including a plurality of pixels connected to gate lines and data lines and arranged in a matrix, the device comprising:
 - 5 a gray voltage generator generating a plurality of gray voltages;
an image signal modifier receiving first image signals for a pixel row and second image signals for a next pixel row, selecting modified image signal depending on the first image signals and the second image signals, and outputting the modified image signals; and
 - 10 a data driver selecting data voltages from the gray voltages based on the modified image signals from the image signal modifier and applying the data voltages to the pixels.
2. The device of claim 1, wherein the image signal modifier comprises a memory unit storing the image signals.
- 15 3. The device of claim 2, wherein the image signal modifier stores the first image signals into the memory unit, and reads out the first image signals stored in the memory unit and stores the second image signals into the memory unit upon receipt of the second image signals.
4. The device of claim 3, wherein the memory unit includes a dual-
20 port memory provided with a read port and a write port.
5. The device of claim 2, wherein the image signal modifier further comprises a data modifier stores the modified image signals depending on the first image signals and the second image signals.
6. The device of claim 5, wherein the data modifier comprises a
25 look-up table.
7. The device of claim 2, wherein the image signal modifier further comprises a multiplexer for changing a path of the image signals supplied to the memory unit depending on the first image signals and the second image signals the memory unit.
- 30 8. The device of claim 7, wherein the multiplexer changes the path in response to a control signal from an external device, and the control signal is

synchronized with a horizontal synchronization signal and a data enable signal having a period equal to a transmission time of the image signals for a pixel row.

9. The device of claim 7, wherein the memory unit comprises a pair of single port memories reading and writing in turn.

5 10. The device of claim 1, wherein each pixel includes first and second subpixels, each subpixel includes a switching element connected to one of the gate lines and one of the data lines, and a pixel electrode connected to the switching element, and the first and the second subpixels are capacitively coupled with adjacent subpixels.

10 11. The device of claim 10, wherein the pixels include upper and lower pixels adjacent to each other, the second pixel of the upper pixel is capacitively coupled with the first pixel of the lower pixel, a areal ratio of the pixel electrodes of the first subpixel and the second subpixel is defined to be equal to a:b, a data voltage (V_1') corresponding to a modified image signal for the upper pixel is determined by:

$$\frac{aT(V_1) + bT(V_1 + 2CV_1)}{a + b} = \frac{aT(V_1') + bT(V_1' + 2CV_2)}{a + b},$$

where V_1 is a data voltage for an image signal for the upper pixel, V_2 is a data voltage for an image signal for the lower pixel, $T(V)$ is transmittance for a voltage V , and C is a constant.

20 12. A method of driving a liquid crystal display including a plurality of gate lines, a plurality of data lines intersecting the gate lines, a plurality of switching elements connected to the gate lines and the data lines, and a plurality of pixel electrodes connected to the switching elements, the method comprising:

25 writing image data for a first pixel row into a memory;

reading the image data for the first pixel row and writing image data for a second pixel row into the memory upon receipt of the image data for the second pixel row;

30 selecting modified image signals determined by the image signals for the first and the second pixel rows; and

applying the modified image signals to the pixels through the switching elements.